Appl. No. : [redacted]ending
Filed : [redacted]erewith

REMARKS

This continuation application has been filed to continue prosecution of claims, which were rejected in the parent application in an Office Action, mailed 11/22/00. A copy of that Office Action is attached to this amendment as Exhibit A for the Examiner's convenience. Please note that Claims 51-54, which were allowed by the Examiner, remain in the parent application. No new matter has been added to the application.

The claims, included in this continuation application, were rejected by the Examiner as either anticipated by Fermann et al. (5,627,848), or as obvious in view of this same reference. The reference is attached to this amendment as Exhibit B for the Examiner's convenience. Applicant requests a reconsideration of this rejection in view of these remarks. Every apparatus claim pending here (Claims 1-50, 58) includes as one element a "multi-mode optical fiber" doped with a gain medium. Every method claim pending here (Claims 55-57) includes as one step "amplifying said light energy within said cavity in a multi-mode fiber." The cited reference, however, does not disclose multi-mode fiber. Rather, that reference discloses double-clad single mode fiber, which is used to permit pumping by a diode laser array. This type of double-clad fiber is specifically described in the background section of the cited reference as follows:

> "To minimize cost, modelocked fiber lasers also should employ diode laser arrays. Indeed, it has been long known that continuous wave fiber lasers may be pumped by diode laser arrays when a doubleclad structure is employed in the fiber design. See, e.g., U.S. Pat. No. 4,815,079 to Snitzer et al. According to Snitzer et al., the fiber is designed to have two claddings, wherein the outer cladding has a low refractive index and the inner cladding has a significantly higher refractive index, giving a typical numerical aperture for light capture by the inner cladding between 0.20 and 0.60. The fiber core then has an even higher refractive index and is placed inside the inner cladding, such that the core location is significantly offset from the center of the inner cladding.
>
> "Snitzer et al. alternatively disclose the inner cladding as having a nearly rectangular shape. Both of these designs ensure that any light launched into the inner cladding crosses over the fiber core as often as possible, so that the light may be efficiently absorbed when the fiber core is doped with a rare-earth gain material. **The fiber core may then be designed to be single mode, and, as a result, a single-mode laser signal output may be obtained when the fiber is placed into a resonator**. Note, however, that perfectly acceptable performance from double-clad fibers having a centro-symmetric fiber structure, i.e., a fiber core placed in the center of the inner cladding, was recently demonstrated. H. Zelmer, U. Williamkowski, A Tunnerman and H. Welling, "High-power cw neodymium-doped double-clad fiber lasers", CLEO 95, paper CMB4. Such pumping schemes were previously predicted in U.S. Pat. No. 3,808,549 to Maurer.

The fiber design can then be reduced to that of a standard single-mode fiber with a low-index coating (such as silicone rubber), which, in fact, was the industry standard for fiber fabrication before the advent of acrylate coatings."

U.S. Patent 5,627,848 at Col. 2, Ln. 18-51, emphasis added.

Please note that the fiber described in this portion of the background section is precisely the fiber that is described in the description of the preferred embodiment:

> "One preferable configuration of the fiber 101 includes Er^{3+} and Yb^{3+} doping levels of 800 ppm and 8000 ppm, respectively, in a phosphoaluminosilicate glass host. The core diameter of the fiber 101 is 6μm, with a numerical aperture (NA) of 0.16. The inner cladding has a diameter of 100 μm and is coated with silicon rubber to give the inner cladding an effective NA of 0.4"

U.S. Patent 5,627,848 at Col. 4, Ln. 20-26.

Some confusion may have been introduced, by the fact that the reference refers to a mode stripper 104 (see, for example, Col. 4 at ln. 57 and following. This mode stripper, however, is used to remove **cladding modes,** not core modes (see Col. 4, ln. 61-62), and does not suggest that the fiber itself is not a single mode fiber.

This distinction, is supported by the dictionary definitions which are attached to this amendment as Exhibit C. This exhibit includes copies from the "Fiber Optics Standard Dictionary, pages 614-615 (providing a definition for "multimode optical fiber") and pages 928-929 (providing a definition for "single-mode optical fiber"). The Examiner will note that these terms refer to the number of "bound" modes, also known as core modes, which the fiber will support. As can be seen from these definitions, in this art, "multi-mode optical fiber" refers to a fiber capable of supporting multiple bound modes. Because the cited reference only refers to multiple cladding modes, and specifically refers to the fiber itself as "single mode," Applicant believes that the rejection of the pending claims is not supported.

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Applicant also includes herein, as Exhibit D, a proposed drawing correction to respond to the drawing rejection issued in the parent application.

Respectfully submitted,

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Dated: 2/16/01

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